

EMC helps company achieve a state-of-the-art shared storage and backup infrastructure



ESSENTIALS

Challenge

- Consolidate its information activities into one data center and reduce the volume and the cost associated with storing its backups

Solutions

- EMC CLARiiON CX4
- EMC Symmetrix DMX
- EMC Data Domain
- EMC SRDF
- EMC PowerPath
- EMC ControlCenter
- EMC Solution Enabler

Key benefits

- Availability and protection of the most critical application for the company's operations
- Reduced secondary storage requirements
- Reliable backup to a remote location system that does not incur any additional personnel cost

A leader in the European concessions and building and public works sector, Eiffage's operations cover five areas: concessions and public-private partnerships (highways and large infrastructure projects), construction, public works, energy, and metals. The company employs 70,000 people and supports such prestigious projects as the Sydney Opera House (1973), the pyramid at the Louvre (1989), the Channel Tunnel (1990), and the Millau viaduct (2004).

Until 2007, each branch of Eiffage had its own IT group and hardware. In 2008, a central IT group was created, and the infrastructure of the entire company was consolidated into a single data center, hosted by a service provider (Volvo IT) in Lyons, France. Sharing information was essential for reducing and minimizing the cost of storage space in a high-growth production environment. The infrastructure also had to absorb storage and backup of the ERP group, whose first batches were scheduled to be delivered at the beginning of 2011.

In keeping with its streamlining approach, the IT group also wanted to eliminate tape backup systems, which involve heavy and costly operational management, and replace them with disk backups, which are faster and more reliable. Finally, through these choices, the IT group wanted to build a truly service-oriented infrastructure, which would give internal customers the ability to choose the level of service that meets their data protection and business continuity needs.

CREATING A SINGLE DATA CENTER

As part of the consolidation of the company's four branches' IT systems and the creation of a single data center, Eiffage moved to 100 percent disk backup and uses the EMC® Data Domain® deduplication solution to sustainably reduce the volume and the cost associated with storing its backups. The architecture implemented for the data center is based on two identical rooms, located a few kilometers from each other, with each one able to take over for the other at any moment.

Server storage (more than 500 servers in mid-2010 of which 40 percent are virtual machines) is performed by EMC Symmetrix® DMX™ SAN arrays (one per room, 2x) via Cisco controllers (2x2). The paths are optimized by EMC PowerPath® software. Replication among the bays in the two rooms is handled by EMC SRDF® technology. In each room, an EMC Data Domain appliance receives the streams sent by the backup client and deduplicates the data. The deduplicated backups are then automatically replicated on a different appliance in the second room. The installed Data Domain appliance offers a processing capacity of 1.2 terabytes per hour. Given the characteristics of the backed-up applications, the average deduplication rate is 14:1, with peaks reaching 19:1. The daily incremental backups are kept for six days, weekly complete backups are kept for four weeks, and complete monthly backups are kept for two months.

MOVING TO A STATE-OF-THE-ART SHARED STORAGE AND BACKUP INFRASTRUCTURE

The recent creation of a data center enabled Eiffage to quickly move from a fragmented infrastructure to a state-of-the-art shared storage and backup infrastructure, benefiting from multilevel storage within the same SAN array, replication, disk backup, and deduplication. The IT group offers availability and protection of the most critical applications for the company's operations (especially payroll, purchasing, and ERP), while being able to easily respond to less significant requirements. Deduplication with EMC Data Domain reduces the volume of backups by a factor of 14, while guaranteeing data integrity and consistency. In addition to reducing secondary storage requirements, the automatic replication of deduplicated backups between the two rooms of its datacenter enables Eiffage to benefit from a very reliable backup-to-remote location system that does not incur any additional personnel cost.

“Thanks to the deduplication performed by Data Domain, we limit the secondary storage volumes and the related management costs thereof without compromising the quality of the backups and the reliability of the restores. This means that we can offer our internal customers better service at a lower cost.”

RACHID HABOUCHI, STORAGE AND BACKUP MANAGER

THE STARTING POINT

“In an effort to reduce costs, it was about going from a scattered IT environment to a unified infrastructure shared by all of the entities of the company,” says Rachid Habouchi, storage and backup manager. “We opted for a data center hosted by a third party, and we designed it for on-demand infrastructure services to which customers subscribe according to their needs. This service offering had to rely upon a robust and scalable architecture for two main reasons: the difficulty predicting the future volumes and the criticality of the applications involved, especially payroll, purchasing, and starting in 2011, company ERP. We wanted to have as much storage and backup automation as possible as there is no permanent Eiffage dedicated staff at the third-party host. This operating mode was incompatible with a tape backup technology that, in addition to the reliability problems, necessarily requires staff to manipulate and remove cartridges to remote locations.”

WHY CHOOSE EMC DEDUPLICATION TECHNOLOGY?

“When we started thinking about our situation, deduplication was still something rather new, but we were already certain that we wanted to eliminate tape drives and using traditional VTL technology,” says Habouchi. “By doing deduplication at the target instead of at the source, we were not making the load on the network any lighter during backups. However, we could significantly reduce the secondary storage capacity. It was all the more attractive because the data center's floor space is limited. Data Domain was the only mature product on the market. We asked EMC to loan us an appliance, and we ran tests that turned out to be convincing. Data Domain was really a key solution, without disks to configure or manage, and it was able to be transparently integrated with our backup software. The strong point about EMC Data Domain was the security afforded by its algorithm that constantly monitors data consistency. Finally, the EMC solution offered an additional level of security by enabling IP replication on the fly between two appliances.”

ESSENTIAL ISSUES SOLVED

“Control of costs and backup volume is the most immediate advantage,” says Habouchi. “For 100 terabytes of usable data with tape technology, we would need almost one petabyte of secondary storage, i.e., about 700 to 800 cartridges and 50 drives to handle our current backup policy. Today, with 43 terabytes of data and a deduplication rate of 14 for 1.23 terabytes of secondary storage, we save the equivalent of 300 terabytes of backup. We have eliminated the costs of managing tapes, and by automating backup to remote locations using replication, we have also eliminated the risk of errors associated with cartridge handling.

“For the two years since Data Domain has been in production, we have not had any incidents, and more importantly, we have not had any restore problems. More broadly, in keeping with our approach as a supplier of infrastructure services, Data Domain contributes along with the other EMC technologies to building customized service offerings for our customers. Just as not everyone needs to store their data on high-end disks, not everyone needs to replicate their backups. We are able to meet these needs, and starting next year, our customers will know exactly how much their infrastructures cost them as these services will be billed by the gigabyte.

CONTACT US

To learn more about how EMC products, services, and solutions can help solve your business and IT challenges, contact your local representative or authorized reseller, or visit us at www.EMC.com.

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